5154

Form 504

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

R.S.Patton, Director

State: Mass.

DESCRIPTIVE REPORT

~~Topographic~~
Hydrographic

Sheet No. 5154
Field # 3C

LOCALITY

Georges Shoal

Georges Bank

1923

CHIEF OF PARTY

W.E. Parker (Gilbert)

5154

Form 537
Ed. Sept., 1929

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO. 5154

HYDROGRAPHIC TITLE SHEET

The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. 3C

REGISTER NO. 5154

State MASSACHUSETTS

General locality ~~OFF CAPE COD~~ Georges Bank

Locality ~~GEORGES BANK~~ Georges Shoal

Scale 1/20,000 Date of survey AUGUST-SEPTEMBER, 1931

Vessel GILBERT & HYDROGRAPHER

Chief of Party W. E. PARKER

Surveyed by CHAS. SHAW

Protracted by J. T. JARMAN

Soundings penciled by J. T. JARMAN

Soundings in fathoms ~~FEET~~

Plane of reference M. L. W.

Subdivision of wire dragged areas by - - -

Inked by

Verified by

Instructions dated APRIL 27, 1931

Remarks:

Des. Repr.
3 Boat Sheets.
3 Vols. Sdgs

U. S. GOVERNMENT PRINTING OFFICE: 1930

(1)

DESCRIPTIVE REPORT
TO
ACCOMPANY

FIELD SHEET NO.3c

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DATE OF INSTRUCTIONS:

The authority for this sheet is found in original instructions dated May 17, 1930, and supplemental instructions dated April 27, 1931.

SURVEY METHODS:

The control for this survey was furnished by five hydrographic buoys located by bomb distances. Later, four additional buoys were planted and located by sun azimuths, double run log distances and sextant cuts from three point fixes, using the five original buoys as signals.

The survey consists of hand lead soundings, which were reduced by tide reducers obtained from observations on tide gauge at Commonwealth Pier, Boston, Massachusetts. Included in this sheet are the fathometer soundings by the ship HYDROGRAPHER in the area between the shoal and field sheets 3 and 3A on the North and East, respectively.

The lead line used on "A" day contained faded markers at 3, 5 and 7 fathoms. These markers when wet appeared white to the leadsman, and consequently there may be occasional errors in soundings of 3, 5 and 7 fathoms on "A" day. A new lead line was in use on the

other days and there are no doubtful soundings.

The control furnished for this survey was not the best, which, coupled with the strong currents encountered, made it extremely difficult to run straight lines over the area. In many cases the spacing of lines is not within the required limits, but members of the hydrographic party on the GILBERT did the best they could under adverse circumstances.

Any breeze above three, (Beaufort scale) produced pronounced current rips. Shoal soundings in the area covered by this survey were found along these rips.

Crossings on the sheet as a whole are good. It was difficult to secure fixes near buoy 1. Long time intervals occur between positions & some soundings may be out of place. It is in this area where the greatest discrepancies in crossings appear.

DISCREPANCIES:

In the beginning buoys 3, 4 and 5 were located and adjusted on the base Nan - Easy 2, and the location of buoys 1 and 2 were obtained from the adjusted quad positions of the northern half of the triangulation scheme (see computations by ship LYDONIA). The above locations were accepted as correct, and buoys 1A to 4a inclusive were located from them, giving due weight to sextant fixes, double run log distances, and sun azimuths (see control sheet). According to the Commanding Officer of the ship HYDROGRAPHER buoy 2A was probably dragged from its original location after the double run log distances had been obtained, and therefore, they were not

Buoy 2A

used in determining the position finally adopted for the buoy. Sextant cuts, resorted to by the hydrographic party on the GILBERT as a check on buoys 1A to 4A, proved the above statement. The cuts were taken from three point fix positions on buoys 1A, 2A, 3A and 4A, using buoys 1, 2, 3, 4 and 5 as control.

When the plotting was three quarters complete, it was noted that jumps in lines occured when shifting from buoys on the northern half of sheet to those on the southern half. These jumps indicated that a 200 meter error existed in the system of buoys, probably between buoys 2 and 3. At a conference of the Commanding Officers of the HYDROGRAPHER, LYDONIA, OCEANOGRAPHER and GILBERT, it was decided to locate buoys 1 and 2 on a common base with buoys 3, 4 and 5 (Nan-Easy 2). The new positions of buoys 1 and 2 thus obtained were plotted on the control sheet, and buoys 1A and 2A located as before, giving due weight to all available data. Buoys 3a and 4a were not affected by the above changes. The sounding lines plotted without noticeable jumps after this change, and the new positions were accepted as final. It was necessary to take out sounding lines already plotted on the northern half of the sheet because of the change in position of buoys 1, 1A, 2, and 2A; this explains the numerous unused red dots in that area.

Difficulty was experienced in plotting the last half of "G" day in the field. Visibility was poor, and the only available fix near the end of the line was 3A, 3 and 2A. Plotted

≠ Original pos. of Buoy 3A appears to be OK on Aug. 22 on applicable Dday, where it was used. Positions controlled by other buoys just before + after the series on Dday (Aug. 22) when Buoy 3A was used, show no jumps in line in course and in these cases by time. Using the new pos.* of Buoy 3A, noticeable jumps are made in the time plotting of the positions.

E Rio.

* New position of Buoy 3A is the mean of the two positions.

positions did not agree with the actual position of the vessel, and the right angleman was of the opinion that buoy 3A had dragged (September 5, 1931).* On September 6, 1931 the HYDROGRAPHER ran two dead reckoning lines past buoy 3A, which supported the above theory. Furthermore, buoy 3A bore evidence of having been tampered with (probably by fisherman) when picked up by the HYDROGRAPHER at the close of the season. The dead reckoning lines mentioned above (see sounding volume labeled sheet 3C (H.5154), vol. 1 by the ship HYDROGRAPHER, pos. 52A to 67A, September 6, 1931) were plotted on the control sheet and the approximate position of 3A obtained so that positions 54 G thru 127 G could be salvaged and plotted. It is believed that the buoy dragged between the interval of August 22, 1931 and September 5, 1931, since no difficulty was experienced in plotting prior to the former date.

Positions 118G thru 127G are extremely weak fixes, and are plotted on time, and locus of left angle with some weight to course. Not much weight could be given to courses due to the unknown quantity of the strong currents encountered.

Every effort has been made to plot all doubtful lines, particularly those with shoal soundings. It is realized that Georges Shoal is an ocean area, and information on the sheet will be transferred to a chart much smaller in scale, thereby minimizing any existing error. The above is particulary true of bearing and angle positions. Bearings are very unreliable on the GILBERT, and more weight was given to time, locus of angle, and course in plotting such positions.

Signals on the boat sheet do not agree with those on the smooth sheet. The boat sheet has no projection and buoys 1, 2, 3, 4 and 5 were located approximately by swinging arcs equal to bomb distances. Buoys 1A, 2A, 3A and 4A were located from the above buoys, using all available data.

"A" (Blue) day, by the ship HYDROGRAPHER had poor control and there are very few three point fixes on this line. Most of the above day was plotted by dead reckoning, with due weight being given to all recorded data.

DANGERS:

Shoal soundings on the sheet were found along current rips and have been indicated by pencil lines.

The soundings listed below may be in error:

$2\frac{4}{6}$ (125G) fathoms in Lat. 41° 38' 1656 meters; Long. 67° 43' 186 meters. This sounding occurs on position 125G and is plotted on the locus of the left angle. It is placed approximately in the correct location.

$3\frac{2}{6}$ (8A) fathoms in Lat. 41° 37' 1650 meters; Long. 67° 42' 810 meters.

3 (21A) fathoms in Lat. 41° 40'; Long. 67° 43' 1320 meters.

The above two soundings occur on "A" day and may have been misread due to faulty lead line marks.

JUNCTIONS:

This sheet joins field sheet 3A on the West, South and East. A junction with field sheet 3 is affected on the North

and Northeast.

REMARKS:

All deviations from standard Coast Survey practice on this sheet have been made with the advice and collaboration of officers with considerably more experience than the plotter.

Depth curves have been shown where possible and in congested areas have been indicated. It was difficult to show depth curves in shoal areas along tide rips without obliterating soundings.

When this sheet was laid out, it was not known that "A" day by the ship HYDROGRAPHER was to be shown on the sheet. In order to show all of the above day, it was necessary to put a dog ear at the Northern end of the sheet.

Respectfully submitted,

J. T. Jarman

J. T. Jarman, Aid
U. S. Coast & Geodetic Survey

STATISTICS ON FIELD SHEET 3C:

	Day	NO. Pos.	No. Snd.	Stat. Mi.
GILBERT	A	53	476	26.7
"	B	160	578	38.0
"	C	226	639	37.7
"	D	143	419	21.2
"	E	8	32	2.0
"	F	80	350	16.0
"	G	127	410	20.8
HYDROGRAPHER	A	78	346	50.0
	Total	875	3250	212.4

REPORT OF INSPECTION:

Forwarded approved.

An inspection of the crossings and junctions with sheets 3 and 3A show no obvious discrepancies.

Roland D. Horne

Roland D. Horne
H. & G. Engineer
Coast & Geodetic Survey

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 5154.
Georges Shoal, Georges Bank.
Surveyed in 1931
Instructions dated May 17, 1930, April 27, 1931 (Lydonia, Hydrographer).

Chief of Party - W. E. Parker.
Surveyed by - C. Shaw.
Soundings protracted by - J. T. Jarman.
Verified and inked by - G. Risegari.

1. The records conform to the requirements of the General Instructions.

2. The plan and character of development fulfill the requirements of the General Instructions.

3. The plan and extent of development satisfy the Specific Instructions. Exception: Failure to comply with paragraph 42 of the May 17, 1930 instructions to run sufficient lines to draw definitely all depth curves. Data is lacking in many places to complete the 10 fathom curve and in some places the 5 fathom curve.

4. Considering the uneven character of the bottom where crossings have been made they are satisfactory with the exception of one at lat. 41° 43', long. 67° 46' 45". While the work at this spot at first inspection may appear erroneous, it is very probable that the condition actually exists as one of the lines is running along a tide rip.

The data was studied for possible inaccurracies and no errors were found in the work.

5. In the descriptive report, page 5, soundings are listed which field party believes may be in error.

A careful study of these soundings fails to discredit them and therefore it is recommended that they be retained. These cases are commented on below and it is regrettable that they were not investigated while on location in order to remove any possible doubt regarding them.

The 2 4/6 fathom sounding is the minimum depth on a well defined ridge. There was found no reason for rejecting it.

The 3 2/6 fathom sounding appears to be correct and plots on a ridge and should be retained.

The 3 fathom sounding also plots on a ridge. This sounding does not appear improbable and should be retained.

6. Comparison with old surveys.

The survey of 1907 by L. H. Westdahl on a scale of 1:20,000 (H. 2907) was the only survey with which the present survey could be compared, the others being on a much smaller scale.

It was impossible to fit the 1907 survey bodily to the new survey, due no doubt to errors occurring in relating the buoys on each survey to one another, caused by the excessive currents, range finder distances, unreliable bearings and unknown swing of any buoy when observed upon. However, the work as a whole on the 1931 survey is believed to be the more accurate. The 1907 survey was therefore fitted to the present survey in sections and the shoal soundings whose continued existence was considered probable were transferred to the 1931 survey. These soundings are indicated in red on H. 5154 which sheet can now supersede all previous surveys that fall within its limits.

7. Attention is called to several spots on H. 5154, which were not sufficiently developed and which bear indications of shoaling.

Lat. 41° 46' long. 67° 48' - 9¾ fathoms.
" 41° 44' " 67° 47' - 8 "
From lats. 41° 36' to 41°37'.5 long. 67° 41'.5 -
Buoy 4A and vicinity.

There are numerous wide gaps which could have been prevented if additional sounding lines with proper spacing had been run normal to the line of buoys, resulting in a better development as well as affording excellent checks on the work.

Reviewed by G. Risegari. - June 30, 1932.

Inspected by - E. P. Ellis.

Approved by - A. M. Sobieralski.

L. O. Colbert
Chief, Field Records Section.

Examined and approved: L. O. Colbert
Chief, Division of Charts.

J. B. Borden
Chief, Field Work Section.

G. Wade
Chief, Division of H. & T.

April 5, 1932.

Division of Hydrography and Topography:

✓ Division of Charts:

Tide Reducers are approved in
3 volumes of sounding records for

HYDROGRAPHIC SHEET **5154**

Locality **Georges Bank, Off Massachusetts**

Chief of Party: **Chas. Shaw and W. M. Parker**
Plane of reference is **mean low water, reading**
3.3 ft. on tide staff at **Commonwealth Pier No. 5, Boston, Mass**
18.2 ft. below B. M. **7**

Allowance made for time and range of tide on the working grounds:
Time $-1^h\ 15^m$; range 0.5 as large

Condition of records satisfactory except as checked below:

1. Locality and sublocality of survey omitted.
2. Month and day of month omitted.
3. Time meridian not given at beginning of day's work.
4. Time (whether A.M. or P.M.) not given at beginning of day's work.
5. Soundings (whether in feet or fathoms) not clearly shown in record.
6. Leadline correction entered in wrong column.
7. Field reductions entered in "Office" column.
8. Location of tide gauge not given at beginning of day's work.
9. Leadline corrections not clearly stated.
10. Kind of sounding tube used not stated.
11. Sounding tube No. entered in column of "Soundings" instead of "Remarks".
12. Legibility of record could be improved.
13. Remarks.

Paul P. Whitney

Chief, Division of Tides and Currents.